

inter-office communication

to: Mark Lehar, SWDO, DERR

100074 000002.5
date: 10 April 1992

from: John F. Estenik, Ohio EPA, Toxics Advisor, DWQPA

subject: Follow-up Comments on Skinner Landfill Dioxin/Dibenzofuran Data

I reviewed the dioxin/dibenzofuran data (sheet attached) from a Skinner Landfill sample per your request. I calculated Total Toxicity Equivalents (TTEs) using the following procedure:

1. Not Detected (ND) concentrations = 0,
2. Estimated maximum possible concentrations (EMPC) were used as reported concentrations, and
3. U.S. EPA's Toxicity Equivalence Factors (TEFs) (1989) were used to calculate individual Toxicity Equivalents (TEs).

The TTEs for the Skinner Landfill sample was 1.25 ppt 2,3,7,8-Tetrachloro-dibenzo-p-dioxin (2,3,7,8-TCDD). This is a background contaminant concentration for 2,3,7,8-TCDD + 2,3,7,8-Tetrachlorodibenzofuran (2,3,7,8-TCDF) + Octachlorodibenzo-p-dioxin (OCDD) Toxicity Equivalence concentrations in industrialized countries (reference attached). The Skinner Landfill TTEs concentration is lower than other background TTEs reported in U.S. EPA 1989 (also attached). There is no problem at the low dioxin/dibenzofuran Skinner Landfill sample concentrations. The Center for Disease Control's (CDC) human health action level for residential areas is 1,000 ppt 2,3,7,8-TCDD, approximately 1,000 times greater than the 1.25 ppt 2,3,7,8-TCDD TTEs for the Skinner Landfill sample.

Contact me if you require further assistance.

cc: Kim Mortensen, ODH
J. Kwasniewski, DERR (WO ATTACHMENTS)

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Sample Description: Left-Center Field
 Date Sampled: 2/14/92

Laboratory ID: C0219505
 Date Analysed: 2/25/92

DIOXINS AND FURANS

NAME	CONC(ppt)	TE ₂ NUMBER	DL	EMPC	RATIO	RT	FLAGS
1 2378-TCDD	ND	—	0.5				
0.5 12378-PeCDD	ND	—	0.5				
0.1 123478-HxCDD	ND	—	0.5				
0.1 123678-HxCDD	0.92	0.092			1.24	45:10	
0.1 123789-HxCDD	1.1	0.11			1.15	45:40	
0.01 1234678-HpCDD	21.9	0.219			0.96	50:12	B
0.001 OCDD	156	0.156			0.84	55:58	B
0.1 2378-TCDF	1.6	0.16			0.69	33:58	
0.05 12378-PeCDF	ND	—	0.4				
0.5 23478-PeCDF	EMPC	0.220		0.44			
0.1 123478-HxCDF	0.86	0.086			1.23	43:54	
0.1 123678-HxCDF	EMPC	0.03		0.30			B
0.1 234678-HxCDF	1.3	0.13			1.06	44:51	
0.1 123789-HxCDF	ND	—	0.4				
0.01 1234678-HpCDF	3.2	0.032			0.88	48:34	B
0.01 1234789-HpCDF	ND	—	0.5				
0.001 OCDF	15.5	0.0155			0.89	56:14	B
1.2505 ppt TTE ₂							
Total TCDD	EMPC			0.61			
Total PeCDD	EMPC			1.9			
Total HxCDD	7.6	4		9.4	1.23		
Total HpCDD	38.2	2			1.00		
Total TCDF	4.1	4		9.5	0.69		
Total PeCDF	9.1	4		10.0	1.53		
Total HxCDF	4.7	4		7.6	1.14		
Total HpCDF	11.5	2			0.89		

B = Compound detected in blank but passed QA/QC
 EMPC = Estimated maximum possible concentration

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Co: CO	Co: SWDO / DEZ
Dept: DWOPA	Phone:
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